STATUS REPORT
HOOPER SANDS ROAD
YORK COUNTY, MAINE

August 22, 1996

DIVISION OF REMEDIATION
BUREAU OF REMEDIATION AND SOLID WASTE MANAGEMENT
MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION

Prepared By

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1. INTRODUCTION

The Hooper Sands Road Site consists of several hundred acres of property belonging to Mr. Paul Hussey, Sr. and fronting on Hooper Sands Road in South Berwick. Mr. Hussey used the property in the 1960s and 1970s to dispose of waste oils and various other chemicals generated at the Portsmouth Naval Shipyard and other industrial concerns. The site came to the attention of the Department of Environmental Protection in 1988 when Hooper Sands Road resident complained of foul drinking water.

The Environmental Protection Agency commenced a Removal Action in 1988, which was conducted in two phases and not completed until 1995. The first phase, which was completed in 1990 involved soil removal and remediation onsite and drum removal. The second phase involved organizing the Town of S. Berwick and the MEDEP to extend municipal was from S. Berwick to 52 residents of the Hooper Sands Road and vicinity and was not completed until 1995. Concurrent with the Removal Action, the site was being evaluated by the EPA Site Assessment program. The MEDEP proposed the site for the National Priorities List (NPL) in 1994, and EPA has not made a formal decision as to its final disposition. However, EPA review of the Hazard Ranking System scoring package indicates that the site does not quite score high enough to be listed on the NPL.

It is expected that the Site will revert to State control sometime in 1996 or 1997. Since, the most potent health-based threat, the residential use of the groundwater at this site has been addressed by provision of alternate municipal water supplies, it remains for the Department to review remaining threats or potential threats at the site.

The Site consists of several contiguous lots fronting on a 0.6 section of Hooper Sands Road and one lot fronting on Knights Pond Road representing six potential source areas. All lots belong to Mr. Paul Hussey Sr. and are notated on the South Berwick Tax Map 13 as Lots #4 (53 acres), #40 (80 acres) and #54 (60 acres)(Figure 1). The Site has been broken down into six potential source areas:

Source Area #1: Knights Pond Road Above Ground Storage Tank Area
Source Area #2: Northern Drum Storage Area
Source Area #3: Southern Drum Storage Area
Source Area #4: Septic Spreading Area
Source Area #5: Hussey Gravel Pit Above Ground Storage Tank Area
Source Area #6: Main Disposal Trench Area

A review of the site files indicated several data gaps. One of the six source areas, Source Area #3, the Southern Drum

Storage Area has been inadequately sampled following the 1989 Removal.

In addition, although groundwater to surface water release was addressed with some sampling of the tributaries of the Great Works River in 1993, additional samples were needed to adequately cover this issue. Hence, the sampling described here reveal potential groundwater to surface water release points to the Great Works River tributaries to the southeast and the south of the Site, and to tributaries of Knights Brook to the west of the Site.

2. POTENTIAL SOIL CONTAMINATION: Six Source Areas

Source Area #1 (Knights Pond Rd. Above Ground Storage Tank Area)

Source Area #1 is located on the east side of Knights Pond Road 100 feet north of the intersection of Knight's Pond Road and Hooper Sands Road. It consists of a small abandoned gravel pit which formerly contained 8 above ground storage tanks used to store waste oil and solvents drained from 55 gallon drums and pumped from tank trucks. Aerial photographs show that all 8 tanks were in place from at least 1966; the final remaining tank was not removed until 1992.

The EPA Environmental Services Division did not remove soil from Source Areas #5 and #1 in October, 1989 when contaminated soils were removed from Source Areas #2, #3, #4 and #6.

EPA took soil samples at three locations from Source Area #1 on October 30, 1990 for volatile (VOC) and semivolatile (SVO) organic carbon, heavy metal and polychlorinated biphenyl (PCB) laboratory analysis. With the exception of one sample having a low-level concentration of methlylene chloride (0.11 ppb), VOC analysis showed no detectable levels of specific organic compounds, but did show detectable concentrations of unidentified straight chain hydrocarbons characteristic of motor oil. SVO analysis confirmed the presence of motor oil, specifically straight chain hydrocarbons C-15 through C-18 at concentrations between 20 and 100 ppb. Analysts described sample spectra as matching heavily weathered motor oil and motor oils of 20, 30 and heavier weights. No other semivolatile compounds were detected. Metal analysis of the soil samples from Source Area #1 revealed no heavy metals above natural levels. Similarly, no PCBs were detected in soil samples from the area.

In conclusion, although the soil from Source Area #1 showed evidence of oil staining, there is no evidence of surface soil contamination with substances that would present a threat to the public health by soil ingestion, skin contact or inhalation of dust. Although motor oil saturated soil is potentially a source for groundwater oil contamination, local groundwater quality is

so severely degraded by hazardous substances that additional oil contamination is insignificant.

Recommendation: no further action.

Source Area #2 (Northern Drum Storage Area)

Source Area #2 is located adjacent to the southwest side of the intersection of Hooper Sands Road and Knights Pond Road. It consists of a small abandoned gravel pit which formerly contained 150 55 gallon drums. Drums were located in the area from at least 1966 as indicated by an aerial photograph and were removed by the Portsmouth Naval Shipyard in 1990-91.

Most of the drums located in Source Area #2 were full. Analysis of drums sampled on May 24, 1989 by the EPA Preliminary Site Assessment Team revealed the presence of the following VOC compounds: acetone, benzene, xylene, toluene and ethylbenzene. Methylnapthalene was the only SVO detected in these drums by EPA. PCB was detected in a single drum in this location: the EPA lab reported 18 ppb of Arochlor-1248. Soil samples analyzed by EPA on the same occasion revealed the presence of oil which was reflected in oil-like unsubstituted hydrocarbon results of the VOC analysis. A relatively low concentration of 0.27 ppm xylene of was detected in a single soil sample.

Beginning in October 1989, EPA Environmental Services Division (ESD) began emergency removal activities including the removal of 600 cubic yards of contaminated soil from Source Areas #2 and #3. ESD sampled soils after the removal from Source Area #3 on October 30, 1990. There were no detectable VOC compounds; SVO analysis revealed hydrocarbons indicative of motor oil. No PCBs were detected and heavy metals were not found above background levels.

In conclusion, soil sampled in Source Area #2 showed evidence of oil contamination, but laboratory analysis indicates that the soil does not contain hazardous substances. No VOC or SVOs other than motor oil related compounds were found in the soil samples.

Recommendation: No further action.

Source Area #3 (Southern Drum Storage Area)

Source Area #3 is located on the west side of Hooper Sands Road 200 yards southwest of the Hussey residence at 169 Hooper Sands Road. The Southern Drum Storage Area consisted of approximately four hundred 55 gallon drums (most empty), one hundred buckets, and an undetermined number of abandoned vehicles. Aerial photography in 1966 did not identify any activity in this source

area, but aerial photographs from 1978 identified the presence of drums in this area. Disposal activities reportedly ended prior to 1989. Drums were removed by Portsmouth Naval Shipyard in 1990-91.

The Preliminary Site Assessment for the EPA Environmental Services Division (ESD) conducted in March 1989 reported stained soils adjacent to some of the drums. Three drums were sampled for VOCs, PCBs, and oil identification. VOCs detected in the three drums ranged from 6-990 ppm consisting of toluene, ethylbenzene, and xylene. No PCBs were detected. One drum contained fuel oil #2, another drum 20 weight motor oil, and the third contained oil that could not be identified. No soils were sampled.

Beginning in October 1989, the ESD began emergency removal activities including the removal of 600 cubic yards of contaminated soil from Source Areas #2 and #3. No soil samples were taken after the soil removal. There is no evidence in the records to indicate that any soil sampling was done at Source Area #3.

Soil sampling was conducted at three locations in Source Area #3 on May 24, 1996. Samples were analyzed for RCRA 8 metals, Volatile organic compounds and Semivolatile organic compounds. There were no detectable volatile other than low levels of acetone (<0.015 ppm) reported at two of the three locations, and acetone is considered to be a common laboratory contaminant. No semivolatile compounds were detected at Source Area #3 other than a low-level (0.11 ppm) of the often reported contaminant, Di(2-ehtylhexyl) phthalate. The distribution of RCRA 8 metals is as follows (Table 1):

Table 1:
Results of RCRA 8 metal analyses of three soil samples taken at three locations at Source Area #3-Southern Drum Storage Area

Element	*Cleanup Standards	SS-1	SS-2	SS-3
Arsenic	30	24	13	13
Cadmium	140	0.7	ND(0.4)	0.5
Chromium	5350(Cr+6)	20	6.5	10
Silver	5350	ND(0.4)	ND(0.4)	ND(0.4)
Mercury	320	0.09	0.06	0.07
Lead	700	44	15	22
Selenium	5350	3.5	3.0	3.0
Barium	10,000	28	14	19

*DEP Health Based Soil Standards Committee Cleanup Guidance for Contact with Contaminated Soils for Trespassers

The concentrations of metals at SS-2 and SS-3 at, or slightly above background levels. Elevated levels of arsenic (24 ppm), chromium (20 ppm), lead (44 ppm) and barium (28 ppm) are present at location SS-1. However, these values are well below DEP Soil Standards Committee Cleanup Guidance for Contact with Contaminated Soils for Trespassers.

Recommendation: No further action.

Source Area #4 (Septic Spreading Area)

Source Area #4 is located 400 feet east of Hooper Sands Road about 2,300 feet south of the intersection of Hooper Sands Road with Knights Pond Road. The Septic Spreading Area was used for the disposal of septage collected throughout southern Maine and parts of eastern New Hampshire. In Addition, five trenches measuring approximately 5 ft X 5 ft X 20 ft each were used for the disposal of oil and hazardous chemicals. the sue of the disposal trenches was reportedly terminated in the 1970s. Aerial photographs indicate that septic spreading activities were conducted in this area as early as 1966. Septic spreading in this area was voluntarily terminated in the spring of 1989 after groundwater contamination was identified.

The EPA Environmental Services Division (ESD) conducted emergency removal of soils at the Hooper Sands Road Site in October 1989. Soils were removed from various source areas and stockpiled in Source Area #4. A total of 2700 cubic yards of contaminated soil and sludge from Source 6 (Main Trench Disposal Area) and 600 cubic yards of soil from Source 2 and Source 3 (Northern and Southern Drum Storage Areas) were excavated by the ESD and stockpiled in the Source 4 area (Septage Spreading Area). Three hundred cubic yards of soil were removed from the Source 4 area and stockpiled with the other soils at the Source 4 area. Selected soils were treated onsite by the EPA using a thermal desorption technique. Both treated and untreated soils remain stockpiled at Source Area #4.

Soil is staged in three areas on Source Area #4. Pile #1 consists of about 500 cubic yards of soil which originated from sludge and bottom layers of trenches from Source Area #6 (Main Trench Disposal Area) and was remediated by the thermal desorption process by EPA in 1989. Soil Pile #2 consists of 4 to 5 mounds of soil amounting to about 1600 cubic yards originating from top layer trench material from Source Area #6 and was not remediated. Soil Pile #3 is made up to two subpiles, one originating from Source Areas 2 & 3 (Northern and Southern Drum Storage Areas) and the other originating from Source Areas #4.

Maine DEP sampled the soil piles on Source Area #4 on June 2, 1994. The laboratory results for organic compounds are shown in Table 1. Dichlorbenzene and trichlorobenzene isomers were reported in the

Table 2
Results of laboratory analysis of soil samples collected by DEP 6/2/94
Analytical Results - Piles #1 & 3 at Source #4 Hooper Sands Road Site (mg/kg)

--------Pile #1-------\--

Pile#3---

		CUStd	K.Z.	B #1	B #2	1-13	1-18	1-22	1-27	1-32	3-3	3-5
VOL	MCB	37		*	*	*	*	*	*	*	*	*
	1,2 DCB	5100	25	*	*	*	*	*	*	*	*	*
	1,3 DCB	5100	25	*	*	*	*	*	*	*	*	*
	1,4 DCB	280	25	*	*	*	*	*	*	*	*	*
	1,2,3 TCB	n/a	3	*	*	*	*	*	*	*	*	*
	1,2,4 TCB	1100	3	*	*	*	*	*	*	*	*	*
	Naph	230	Σ=1	*	*	*	*	*	*	*	*	*
SVO	1,2 DCB	5100	25	*	*	K0.1	*	0.72	K0.5	K0.5	*	*
	1,3 DCB	5100	25	*	*	*	*	K0.5	*	*	*	*
	1,4 DCB	280	25	*	*	*	*	K0.5	K0.5	*	*	*
	1,2,3 TCB	n/a	3	*	*	*	*	*	*	*	*	*
	1,2,4 TCB	1100	3	*	*	*	*	K0.5	*	*	*	*
	Pyrene	1700	Σ=1	*	*	*	*	*	*	*	*	*
	Naph	230	Σ=1	*	*	*	*	*	*	*	*	*
	2-MeNaph	n/a	Σ=1	*	*	*	*	*	*	*	*	*
	Phenanthr	n/a	Σ=1	*	*	*	*	*	*	*	*	*
	Benzoic			*	*	K2.0	*	*	*	*	*	*
	BBPht	10000		*	*	*	~~0.17~~	*	*	*	*	~~0.54~~
	2-EHPht	49		.60	6.9	~~1.3~~	~~0.27~~	~~1.1~~	~~1.1~~	~~5.17~~	~~0.51~~	~~K0.5~~
	DOPht	1100			*	*	*	*	*	*	*	*
Gasoline				**13**	**11**	**0**	**1**	**0**	**4**	**14**	**1**	**38**

CUStd = Proposed New Jersey Residential Cleanup Standards
K.Z. = Katie Zeeman recommended risk based levels
B #1 Background Sample #1
B #2 Background Sample #2
n/a Not Available
* Not Detected

MCB Monochlorobenzene
1,2 DCB O-Dichlorobenzene
1,3 DCB M-Dichlorobenzene
1,4 DCB P-Dichlorobenzene
1,2,3 TCB 1,2,3-Trichlorobenzene
1,2,4 TCB 1,2,4-Trichlorobenzene
Naph Naphthalene
Pyrene Pyrenene
2-MeNaph 2-Methylnaphthalene
Phenanthr Phenanthrene
Benxoic Benzoic Acid
BBPht Butyl Benzyl Phthalate
2-EHPht Bis(2-Ethylhexyl) Phthalate
DOPht Di-N-Octyl Phthalate

Table 2 (continued)
Results of laboratory analysis of soil samples collected by DEP 6/2/94
Analytical Results - Pile #2 at Source #4 Hooper Sands Road Site
(mg/kg)

Upper Layer (0-6 feet)

		CUStd	K.Z.	B #1	B #2	2-20	2-33	2-37	2-40	2-42	2-48
VOL	MCB	37			*	*	*	*	*	*	*
	1,2 DCB	5100	25	*	*	*	*	*	.002	.003	*
	1,3 DCB	5100	25	*	*	*	*	.004	.007	.054	*
	1,4 DCB	280	25	*	*	*	*	.003	.004	.003	*
	1,2,3 TCB	n/a	3	*	*	*	*	.012	.037	.022	*
	1,2,4 TCB	1100	3	*	*	*	*	.059	.154	.036	*
	Naph	230	Σ=1	*	*	*	*	*	.012	*	*
SVO	1,2 DCB	5100	25	*	*	*	*	K.10	*	*	*
	1,3 DCB	5100	25	*	*	*	*	*	*	*	*
	1,4 DCB	280	25	*	*	*	*	*	*	*	*
	1,2,3 TCB	n/a	3	*	*	*	*	*	*	*	*
	1,2,4 TCB	1100	3	*	*	.48	*	.16	4.6	.27	*
	Pyrene	1700	Σ=1	*	*	*	*	.51	3.3	.21	*
	Naph	230	Σ=1	*	*	*	*	*	*	*	*
	2-MeNaph	n/a	Σ=1	*	*	*	*	*	*	*	*
	Phenanthr	n/a	Σ=1	*	*	*	*	*	*	*	*
	BBPht	10000		*	*	~~.14~~	*	~~.36~~	*	*	~~.16~~
	2-EHPht	49		.60	6.9	~~.67~~	~~.50~~	~~.49~~	~~.96~~	~~.36~~	~~.41~~
	DOPht	1100			*	*	*	*	*	*	*
Gaso line				**13**	**11**	**91**	**5**	**242**	**88**	**51**	**2**

Lower Layer (6-12 feet)

		2-57	2-65	2-71	2-73	2-74	2-77	2-87	2-93	2-94	2-98
VOL	MCB	*	*	*	*	*	*	1.80	.002	*	*
	1,2 DCB	.020	.059	*	*	*	*	4.44	*	*	*
	1,3 DCB	.050	.81	*	*	*	*	.34	.058	.030	.34
	1,4 DCB	.023	.53	*	*	*	*	2.29	.007	.003	*
	1,2,3 TCB	*	.147	*	*	*	*	*	.011	*	*
	1,2,4 TCB	.059	.307	*	*	*	*	*	.050	.02	.68
	Naph	*	*	*	*	*	*	*	*	*	*
SVO	1,2 DCB	*	.11	*	*	*	*	4.7	*	*	*
	1,3 DCB	*	2.1	*	*	*	*	.46	.11		.29
	1,4 DCB	*	1.3	*	*	*	*	2.7	*	*	*
	1,2,3 TCB	*		*	*	*	*	*	*	*	*
	1,2,4 TCB	*	1.55	K.1	K.1	K.1	K.1	.45	.24	.21	1.38
	Pyrene	*	.51	*	*	*	.49	*	.19	*	.30
	Naph	*	*	*	*	*	*	.27	*	*	*
	2-MeNaph	*	*	*	*	*	*	.52	*	*	*
	Phenanthrene	*	*	*	*	*	*	.30	*	*	*
	BBPht	*	~~.33~~	*	*	*	~~.31~~	*	*	~~.14~~	~~.38~~
	2-EHPht	*	~~31~~	~~.32~~	~~.17~~	*	~~.66~~	~~.15~~	~~.91~~	~~.37~~	~~3.76~~
	DOPht	*	~~.16~~	*	*	*	*	*	*	*	*
Gaso line		**171**	**539**	**11**	**20**	**16**	**926**	**310**	**79**	**563**	**276**

Volatile and Semivolatile fractions. These compounds were reported at levels two to ten times higher in the Semivolatile fractions, and since they the least volatile of the Volatile fraction, i.e. the end of elution run, the levels reported as Semivolatile fractions are considered more reliable. Other than the di- and trichlorobenzenes mentioned above, and monochlorobenzene reported in samples 2-87 and 2-93, no other Volatile Organic Compounds were detected in Soil Pile #2, with the exception of one report of naphthalene at 0.012 ppm in Sample 2-40. Since phthalates were reported in the background samples, and recent problems with DHS phthalate laboratory contamination, phthalate results are unreliable. Phthalate contamination therefore is discounted.

The dichlorobenzenes were in the majority of samples non-detectable (<0.1 mg/kg). In two samples out of eighteen, the dichlorobenzenes are elevated to the 1 to 5 mg/kg range (Table 1). The proposed New Jersey Cleanup Standards for dichlorobenzenes range from 280 to 5100 mg/kg. Katie Zeeman in her 9/24/90 health risk evaluation, reported that concentrations greater than 25 mg/kg could cause dermal irritation in the most sensitive individuals. Trichlorobenzene was reported above the detection limit in one-half of the samples (Table 1). The highest concentration reported was 4.6 mg/kg followed by 1.6 and 1.4 mg/kg. The remaining trichlorobenzene "hits" were in the 0.1 to 0.5 mg/kg range. The proposed New Jersey Cleanup standard for trichlorobenzene is 1100 mg/kg. Katie Zeeman reports that a 3 mg/kg level of trichlorobenzene may cause a contact threat for the most sensitive individuals.

Polyaromatic Hydrocarbons (PAH's). Pyrene was reported in seven out of eighteen samples (Table 1). The maximum concentration of pyrene was 3.3 mg/kg in sample 2-40; the remaining pyrene "hits" were in the range from 0.19 to 0.5 mg/kg. The proposed New Jersey Cleanup standard for pyrene is 1700 mg/kg. No other PAH's were reported in any of the samples with the exception of sample 2-87, which had concentrations of naphthalene, 2-methylnaphthalene and phenanthrene in the range 0.27 to 0.53 mg/kg. The proposed New Jersey cleanup standard for naphthalene is 230 mg/kg. Katie Zeeman quotes a Bureau of Health guideline for total PAH's of 1 mg/kg. This guideline is exceeded in two of the eighteen samples (Table 1), sample 2-40 with 3.3 mg/kg pyrene and sample 2-87 with 1.09 mg/kg total PAH's.

Petroleum. The so called "gasoline" results actually indicate the presence of a heavy oil according to Wayne Buck, DHS Chemist. Concentrations of this material range from 2 to 926 mg/kg (Table 1). This material was reported as "oil and grease" in the August 23, 1990 Analytical Report prepared by Roy F. Weston, Inc. which presented results from samples taken in June and July, 1990. Katie Zeeman's 9/24/90 Health Risk Analysis of these soil piles attributed the toxicity of this petroleum to the potential presence of PAH's. According to Dr. Zeeman, the oil itself did not pose a significant health threat.

Heavy Metals. Metals analyzed were within normal background levels, with the exception of arsenic in Soil Pile #1 which range from 8-150 ppm. Since previous analytical results did not show elevated levels of arsenic in any of the piles stage at Source Area #4, Pile #1 was resampled on 1/18/95. Prior to sampling, the soil pile was measured and marked out in a 10 ft grid pattern, identical to the previous sampling. The results are shown in Table 2 in bold, with the previous samples (6/2/94) in parenthesis. All results are in parts per million (ppm). Arsenic results are in the range As = 4 to 11 ppm, including those samples taken from the areas of the pile that previously showed elevated arsenic results.

Recommendation: no further action

Table 3.
Soil pile #1 was resampled on January 18, 1995, following recommendation of Alex Sherrin who judged the elevated arsenic results were due to lab error and suggested resampling.

	0'	10'	20'	30'	40'	50'	60'	70'	80'	90'	100'	110'	120'
0'	1	2	**3** **As=9**	4	5	6	**7** **As=10**	8	9	10	11	12	***13*** **A=10** (As=150)
10'	14	15	16	17	***18*** **As=9** (As=120)	19	20	21	***22*** **As=4** (As=8)	23	**24** **As=10**	25	26
20'	**27** **As=9** (As=8)	28	**29** **As=9**	30	31	**32** **As=10** (As=140)	33	34	35	36	37	38	39
30'	40	41	42	**43** **As=11**	44	45	46	**47** **As=11**	48	49	**50** **As=9**	51	52

130'

40'

Source Area #5 (Hussey Gravel Pit Above Ground Storage Tank Area)

The Hussey Gravel Pit Above Ground Storage Tank Area (Source Area 5) is located on the west side of the Hooper Sands Road 2,000 feet south-southeast of the Hooper Sands Road/Knights Pond Road intersection. This area consisted of three aboveground storage tanks used to store materials drained from the 55 gallon drums stored at the Northern and Southern Drum Storage Areas. As many as ten aboveground storage tanks have been located in the disposal area since 1978, when aerial photos first identified the presence of above ground oil storage tanks in this source area.

Waste oil located in Source Area #5 tanks was consolidated into a single 10,000 gallon tank located in Source Area #1 in 1991 by Mr. Hussey; this tank and its contents (9,351 gallons of waste oil) was removed by DEP contractors in November 1992. EPA did not remove soil from Source Areas #5 and #1 in October, 1989 when contaminated soils were removed from Source Areas #2, #3, #4 and #6.

The EPA Environmental Services Division took soil samples from three locations in Source Area #5 on October 30, 1990 and had them analyzed for VOCs, SVOs, heavy metals and PCBs. Laboratory results showed the absence of VOCs in all three samples, but two out of three samples showed traces of unidentified oil-like hydrocarbon compounds. SVO analysis confirmed the presence of a mixture of heavy and weathered oil as well as motor oil, but no other semi-volatile compounds were detected. Analysis for heavy metals showed no metals were present above background levels. No PCBs were detected in Source Area #5 soil samples.

In response to a citizen complaint regarding the use of the Hussey gravel pit in early November, MEDEP responded by sampling the currently mined gravel pit (which is 1000 feet to the west of the original gravel pit used to store oil) on November 9, 1995. Visual inspection revealed no evidence of oil staining or contamination. Real-time onsite tests with a photoionization detector of 15 soil samples from the face of the gravel pit revealed the absence of detectable levels of VOCs. Ten samples taken from the gravel pit face showed no detectable VOCs and no levels of RCRA 8 heavy metals (As, Ba, Cr, Pb, Hg, Se and Ag) above the range of naturally occurring background levels. Based on these results, the Department placed no restrictions on the mining and use of gravel from the Hussey Gravel Pit.

In conclusion, there is no evidence that soils from Source Area #5 are contaminated with substance that would present a threat to the public health. Traces of heavy oils and motor oil detected in laboratory soil analysis in autumn of 1990,

might threaten a groundwater aquifer, the heavily degraded groundwater in the area would not be significantly impacted with by oil.

Recommendation: No further action.

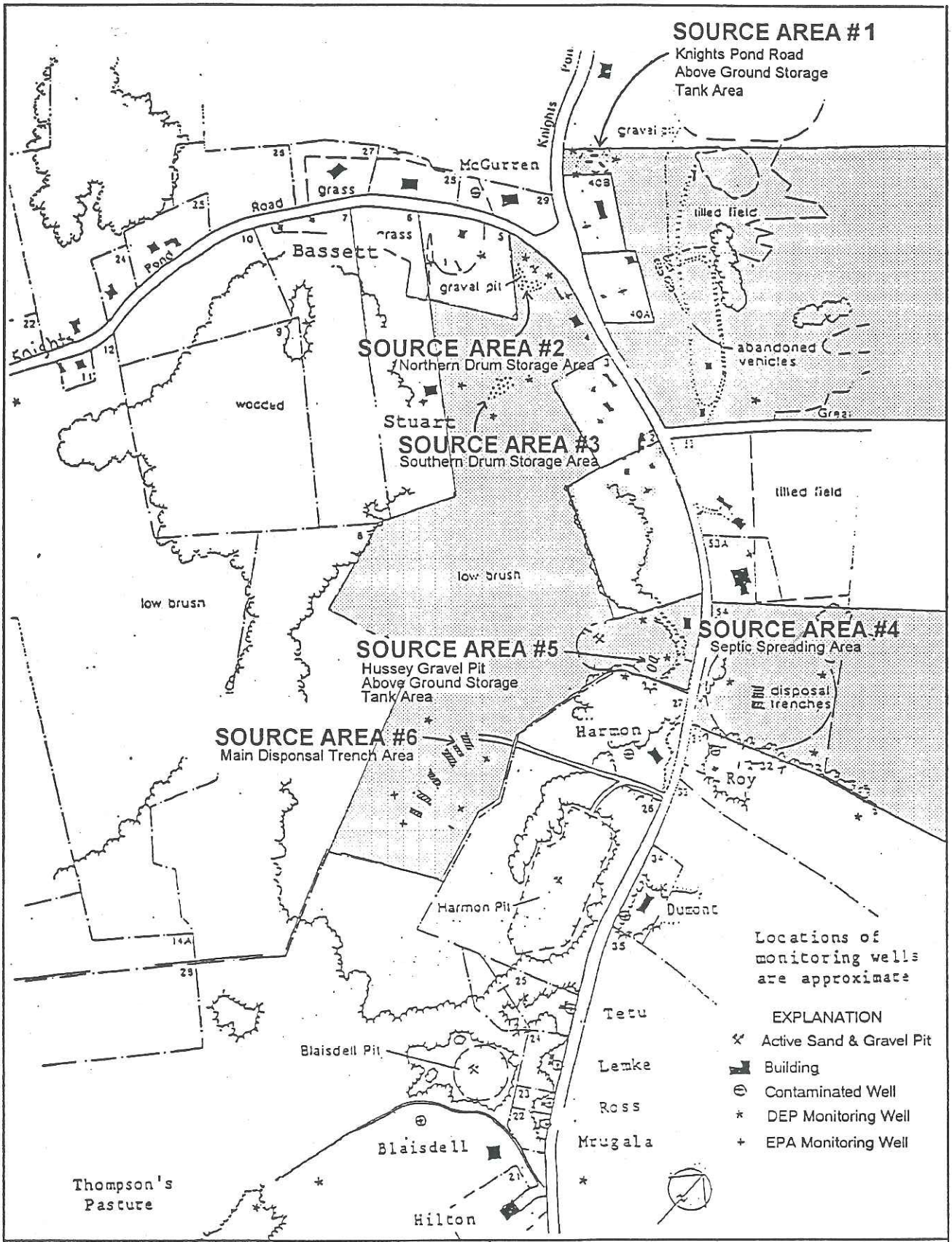
Source Area #6 (Main Trench Disposal Area)

The Main Trench Disposal Area (Source Area #6) is located 1000 feet west of Hooper Sands Road about 2,600 feet south of the intersection of Hooper Sands Road with Knights Pond Road. Source Area #6 consisted of 6 unlined disposal trenches each measuring approximately 10 X 40 feet used for the disposal of various hazardous chemicals and #6 fuel oil. The period of time that Source Area #6 was used for chemical disposal is not well documented, but use reported ended in 1979.

The EPA Environmental Services Division removed 2,700 cubic yards of contaminated soil and sludge from the trenches in Source Area #6 in October 1989. Relative to the known number and size of trenches, 2,700 cubic yards of soil represents 3 times the volume of soil contained in 6 trenches of 10 X 40 feet and 10 feet deep (889 cubic yards). Therefore, it appears that a generous excess volume of soil was removed for safety. Subsequently, ESD sampled the remaining soil on October 30, 1990 for VOCs, SVOs, heavy metals and PCBs. The results of VOC analysis revealed the absence of detectable levels of specific compounds, but one sample showed detectable level of unidentified hydrocarbon compounds characteristic of weathered motor oil. SVO analysis confirmed the presence of weathered motor oil in the same sample, but revealed no detectable levels of other semi-volatile compounds. No heavy metals were found above naturally occurring levels. PCB analysis revealed no detectable levels of PCBs. The lack of detectable levels of contaminants is not surprising despite once heavy contamination in the source area, since a large amount of soil was removed in 1989.

In conclusion, although Source Area #6 contained the most heavily contaminated soils (and sludges) of all six Hooper Sands Road Site source areas, a considerable amount of soil (2,700 yards) was removed in 1990. Soil sampling and analysis shows traces of weathered oil but no hazardous substance which might threaten the public health. The soil remaining at Source Area #6 is neither a threat to the public health or to the environment.

Recommendation: no further action.



MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION

Figure 1. Hooper Sands Road Site
Potential Source Areas

After Weston Geopnysical
Figure 2 Hydrc/Geo Investigation
Phase I - Site Assessment

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Figure 2. Groundwater to Surface Water Release of Metals

After Weston Geophysical
Figure 1 Hydro/Geo Investigation
Summary Report of Stage 2 Field Investigations

3. **POTENTIAL GROUNDWATER TO SURFACE WATER RELEASE OF HAZARDOUS SUBSTANCES:** Great Works River & Knights Brook

Weston Geophysical reported in 1991 that they had conducted a stream flow study of the Great Works River to the west of the Hooper Sands Road Site to determined if the river was gaining groundwater as it flowed south. Weston reported that the river was gaining flow and concluded that there was a potential for impacted groundwater from the Site being released to the Great Works River.

MEDEP sampled the Great Works River in May 1993 to determine if contaminants were being transported to the river by means of groundwater transport and release. The sampling points focused on releases from Source Area #4, the Septic Spreading Area. Background samples (93-0) were taken upstream of the Gray Road bridge to provide a reference. Sediment and surface water samples were collected and analyzed for volatile organic compounds and RCRA 8 metals. Subsequent down river locations were determined from the water by canoe, by selecting seeps, springs and inlets to the Great Works River. The locations of the three down river areas sampled in 1993 are labeled in Figure 2 as 93-1, 93-2 and 93-3.

MEDEP conducted additional sampling in May 1996 to supplement the 1993 data by covering potential groundwater to surface water release to the southeast and south of the site to the Great Works River and to Knights Brook. Both surface water and sediments were sampled in 1996 and analyzed for volatile organic compounds, semivolatile organic compounds, and RCRA 8 metals. These sampling locations are identified in Figure 2 as 96-1, 96-2, 96-3, 96-4 and 96-7.

No semivolatile organic compounds were detected in surface water or sediment samples other than bis-2-ethylhexyl phthalate (Table 4). Since phthalates are common laboratory contaminants and have not previously been implicated at the site, the reported concentrations are interpreted as resulting .from laboratory contamination.

Volatile organic compounds were not reported for the samples taken from Great Works River tributaries on the east side of the Hooper Sands Road, with the exception of low levels of acetone in sediment samples #96-2 and 96-3. Since acetone is a common laboratory contaminant, these reported acetone values are not considered to be actual releases. Actual release of volatiles associated with the site are evident at 96-4 in both the sediment and surface water samples. Station 96-4 is south of the site, in an area of seepage just east of Thompson's Pasture, which forms into a tributary flowing south into the Great Works River. Both sediment and surface water samples taken at 96-4 show low level concentrations of Freon-113 and

trichloroethylene (TCE), which are contaminant associated with the site. No published health based numbers are published for the Freons, but 0.022 ppm trichloroethylene in the sediments is well below that which would be a probable health based threat (the draft DEP cleanup standard for PCE is 1710 ppm). This is in contrast to the surface water concentration of 0.0506 ppm for PCE, which exceeds the Department of Human Services drinking water Maximum Exposure Guideline for this compound which is 0.005 ppm.

The interpretation of metal data is complicated by the fact that metals are to a varying extent naturally occurring. Table 4 follows the EPA convention of considering a metal to be considered to have been released from the site if its concentration is greater than three times the background concentration. Metal values which exceed background by a factor of three are printed in bold type in Table 4.

There is no evidence of elevated concentrations of metals in the surface water samples of seeps, springs and tributaries, suggesting that currently no metals are being transported from contaminated groundwater to surface water. However, the sediments taken from tributaries and seeps feeding the Great Works River east of Hooper Sands Road (93-1, 93-2, 93-3, 96-1, 96-2, and 96-3) show some evidence of the release of arsenic, lead and barium, but the absence of elevated concentrations of these metals in the accompanying surface water samples suggests that these metals may have been transported from the groundwater some time in the past. The elevated metal concentrations are below heath based threshold as determined from draft soil cleanup standards.

The sediment sample taken at 96-4 south of the site had significantly elevated levels of arsenic, cadmium, chromium and lead. The arsenic concentration (120 ppm) is high enough to present a potential ingestion threat based on draft soil cleanup guidelines. The elevated metal concentrations together with elevated concentrations of volatiles previously discussed, suggest that a significant groundwater to surface water release pathway from Source Area #6 flowing directly south may have existed some time in the past. The absence of elevated concentrations of contaminants identified in the sediments in the accompanying surface water samples suggests that a viable groundwater to surface contaminant release pathway does not currently exist.